

PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

SERIES C. JOURNAL OF MEETINGS

VOLUME 14.

No. 11, 1949

ANNUAL MEETING

WEDNESDAY, 18TH JANUARY, 1950, at 5.0 p.m.

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 7th December, 1949.
2. Recommendations of candidates for Fellowship.
3. Announcement of election of new Fellows.
4. Announcement of election of Officers and Council for 1950.
5. Additions to the Library.

Presented.

- Allan, P. B. M. *Larval foodplants. A vade-mecum for the field Lepidopterist.* Sm. 8vo. London. 1949. [The Author.]
- Aubert, Jacques-F. *Papillons d'Europe. 1. Diurnes et Écailles.* [Les Beautés de la Nature.] 8vo. Neuchâtel et Paris. 1949. [The Publishers.]
- Barnes, H. F. *Gall Midges of economic importance. Volume VI. Miscellaneous crops.* 8vo. London. 1949. [The Publishers.]
- Butler, C. G. *The honeybee. An introduction to her sense-physiology and behaviour.* 8vo. Oxford. 1949. [The Author.]
- Teale, E. W. (Editor). *The Insect World of J. Henri Fabre.* 8vo. New York. 1949. [The Publishers.]
- Grassé, Pierre-P. (Editor). *Traité de Zoologie. Anatomie, systématique, biologie. Tome IX. Insectes; Paléontologie, Géonémie, Insectes inférieurs, Coléoptères.* 4to. Paris. 1949. [The Publishers.]
- Shafer, George D. *The ways of a mud dauber.* 8vo. Stanford, Calif., U.S.A. and London. 1949. [The Publishers.]

Purchased.

- Hennig, Willi. *Die Larvenformen der Dipteren. 1 Teil.* 8vo. Berlin. 1948.
- Marais, Eugène. *Moeurs et coutumes des termites.* 8vo. Paris. 1938.
- Porta, Antonio. *Fauna Coleopterorum Italica. Supplementum II.* 4to. Sanremo. 1949.
- Schultz, Oskar. *Gynandromorphe Macrolepidopteren.* 4to. Neudamm. 1896-7. [Illustrierte Wochenschrift für Entomologie.]

In addition separates have been presented by Dr. Luis Vargas, Miss C. Longfield, The Woolhope Naturalists' Field Club, Hereford, Prof. P. A. Buxton, Dr.

T. T. Macan, Dr. E. McC. Callan, United States Department of Agriculture, The Cawthron Institute, Nelson, New Zealand, Mr. G. Fox-Wilson, The Smithsonian Institution, Council for Scientific and Industrial Research of the Commonwealth of Australia, Mr. R. H. P. Curle, Dr. B. P. Uvarov, The Trustees of the British Museum and Mr. E. F. Whiteside.

6. Admission of Fellows.
7. Council's Report.
8. Treasurer's Report and Balance Sheet.
9. The President's concluding remarks.
10. Vote of thanks to the Officers.

Tea will be served after the meeting in the Library, where Fellows are invited to show exhibits suitable to the occasion. A selection of interesting items from the Society's library will also be on view.

A card index of Fellows' addresses arranged on a geographical basis is now available for the use of Fellows in the Society's Rooms. Addresses are grouped under counties in Great Britain : elsewhere under Dominions, Colonies, Foreign States, etc.

ADMISSION OF FELLOWS

Any Fellow who has not been formally admitted to the Society under Chapter XIV, Section 4 of the Bye-laws and attends the meeting on 18th January, 1950, is requested to inform the Secretary before 5.15 p.m. on that date.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 7TH DECEMBER, 1949.

Dr. V. B. Wigglesworth, F.R.S., President, in the Chair.

Present, 73 Fellows and 20 Visitors.

The minutes of the Ordinary Meeting held on 2nd November, 1949, were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : P. Basilewsky, J. W. Cranham, B.A., D. C. Drummond, A. E. H. Higgins, A.R.C.S., D.I.C., R. O. Jarvis, W. F. Jepson, O.B.E., Ph.D., A.R.C.S., Miss B. K. Macpherson, Miss E. N. Marks, M.Sc., M. C. Ruben.

For the second time : Dr. William Beebe, L. A. A. M. Berger, W. S. I. Cox, P. S. B. Digby, F. Fincher, F. G. Hawkins, D. G. Pollard, B.Sc., C. Smedley, H. E. Webb and D. P. Webley, B.Sc.

The Secretary read the names of the following newly elected Fellows of the Society : Dr. Kjell Ander, Phil.Dr., Universitetsbiblioteket, Lund, Sweden ; W. B. Broughton, B.Sc., 15, Woodlands Gardens, Woodford New Road, London, E.17 ; C. Garrett-Jones, B.Sc.(Econ.), M.Sc., Houseboat Hilara, c/o Rye House Farm, Hoddesden, Herts ; Dr. J. W. O. Holmes, Dunstead, Langley Mill, Notts ; P. Israel, M.A., Head of the Division of Entomology, Indian Central Rice Research Institute, Cuttack 4, India ; F. J. Manning, B.A., County Training College, Alsager, Stoke-on-Trent ; H. D. Morgan, Rose Cottage, Newton, Porthcawl, Glam. ; K. G. Smith, B.Sc., Pest Infestation Survey, c/o Technical Institute, Yaba, Nigeria ; K. Spencer, B.A., 28, Park Drive, London, N.W.11.

Thanks were voted to donors of gifts to the Library since the last meeting.

The Secretary read for the second time the nominations for Officers and Council for 1950.

The following papers, accepted for publications in the *Transactions*, were read in title:

"Further studies on the relation of humidity and temperature to the development of two species of African Locusts—*Locusta migratoria migratorioides* R. & F. and *Schistocerca gregaria* Forsk.," by A. G. Hamilton.

"A revision of the genus *Tenaris* Hübner (Lepidoptera, AMATHUSIIDAE)," by C. J. Brooks.

Dr. D. S. Bertram, Mr. W. B. Broughton, Mr. C. Garrett-Jones, Mr. F. G. W. Jones, Mr. G. Holland Jones and Mr. K. Spencer signed the Obligation Book and were admitted Fellows of the Society.

Dr. N. E. Hickin exhibited larvae of the British PSYCHOMYIDAE. He said that extremely little had been published concerning the immature stages of this family of Caddis flies. During 1949 the larvae of three species, *Tinodes pallidula* McLachlan, *Tinodes waeneri* (L.) and *Lype reducta* Hagen, from British localities were investigated. Larvae of the first and last had never previously been recorded, and *Tinodes pallidula* was an addition to the British list. He mentioned that larvae of these three species did not construct transportable cases, but fashioned tunnels, often several times longer than the length of the larva. The tunnels were fixed to stones (*Tinodes waeneri*), pieces of brick (*Tinodes pallidula*) or rotten wood (*Lype reducta*). In *Lype reducta* particles of rotten wood were bitten from the surface of submerged branches and used as a material for the tunnel. The grooved appearance of the submerged branches was most probably due to these larvae. These tunnels, and characteristic features of the morphology of the larvae, the attenuated labium, the tarsal claws, etc., were demonstrated by specimens and drawings. Mr. D. E. Kimmins showed series of adults of each of the above species from the British Museum (Natural History).

Mr. R. L. E. Ford exhibited a case of insects bred from the plant *Oenanthe phellandrium*. The specimens included *Prasocuris phellandrii* L. (Coleoptera) with a new Braconid parasite, *Elachiptera megaspis* Latreille (Diptera), *Depressaria nervosa* Haworth and *D. ultimella* Stainton (Lep.), with an undescribed *Angitia* sp. (Hym.), a parasite of both moths, and a new *Apanteles* sp. (Hym. BRACONIDAE), a parasite of *D. nervosa*.

Dr. van Emden inquired whether *Lixus paraplecticus* L., frequently associated with this plant, had been found. Mr. Ford said he had not come across this particular species.

Mr. Paul Freeman exhibited a new species of subapterous *Tipula* collected by Dr. George Salt near the snow line on Mt. Kilima Njaro, Tanganyika. He said that this species was closely allied to *T. oleracea* L. and to two other subapterous species collected by the late Dr. F. W. Edwards high up on other E. African mountains. All three species were subapterous in both sexes, which was not usual in Tipulids, it being more common in species showing a subapterous condition for the male to be fully winged and for only the female to be short-winged. The exhibit included specimens of all three species, with photographs lent by Dr. Salt of the alpine desert zone of Mt. Kilima Njaro, and also specimens of a number of other species of TIPULIDAE showing wing reduction in the female or in both sexes. Mr. Freeman said that species showing this condition were usually either mountain species or species in which the adults emerged late in the season. The genus *Chionea* was an example of the latter, the adults of both sexes of all species were practically wingless and were active and mated freely on snow; they could also be induced to mate on any white background.

In the discussion following Mr. Freeman's remarks Dr. van Emden said that "locality-bound" species such as those restricted to wind-swept oceanic islands often lose their wings. The TIPULIDAE were poor fliers and could not stand high winds. Dr. Gunn mentioned that wingless Acridids were also a feature of highland faunas.

Professor Varley said that the reference to species of *Chionea* being more active on snow reminded him of similar habits in the Mecopteren *Boreus hyemalis* L., which he had himself found in the Lake District on snow on Christmas Day.

He also mentioned the wingless female Mycetophilid *Epidapus* which he had found abundantly in oakwoods in summer. This suggested that there were other factors beside cold and high winds operating in the evolution of winglessness.

Mr. Parmenter recalled that some years ago the late Dr. F. W. Edwards had exhibited living specimens of a *Chionea*, which had been flown to this country from Denmark, and which were very sluggish on a grey surface, but became quite active on a white background.

Professor G. D. Hale Carpenter exhibited two boxes of new species, subspecies, or forms of butterflies from East Africa and Ituri Forest, Belgian Congo, collected by Mr. T. H. E. Jackson, F.R.E.S. He said the following were especially noteworthy, and a description of these novelties was in course of preparation for the Society.

Pseudacraea eurytus L. Yet another form of this protean species recently monographed in *Trans. R. ent. Soc. Lond.* **100** : 71-133.

Mimacraea krausei Dewitz, mimicking *Acraea karschi*.

Colotis fausta Olivier. A Somaliland race of a common Eastern species, not previously known from Africa. Doubtless derived from ssp. *vi* Swinhoe at Aden.

Charaxes etheocles Cramer. A subspecies of which one female form closely resembled the male of another species. Two other female forms were also shown.

Euptera sp. nov. A striking species completely different from any others known.

Mr. H. D. Swain exhibited a series of butterflies of the South American genera *Prepona* and *Agrias*, with two coloured drawings of very rare species, *P. garleppiana* Staudinger and *P. xenagoras* Hewitson. The exhibit included specimens of *P. praeneste* Hewitson and *P. buckleyana* Hewitson representing the forms transitional from *Prepona* to *Agrias*.

Professor G. C. Varley exhibited two gynandromorph specimens of the Winter Moth, *Operophtera brumata* L., taken by him at Wytham Wood, Berks., in the course of a study of this moth. He said that he had examined some 450 adult females, and the gynandromorphs were caught on the same tree-trunk within two days of each other on 21st and 23rd November, 1949. Their characters were :

	Antennae.	Wings.	Abdomen.	Genitalia.
No. 1	♀	Rt. fore wing ♀, three other wings strap-shaped	No eggs	♂
No. 2	♀	L. fore wing ♀, three other wings strap-shaped	Eggs present	♂

Mr. Garrett-Jones said that from experience he had with the Winter Moth in Hertfordshire he thought it was usual to find a high proportion with the wings deformed.

Mr. R. L. E. Ford recalled that on one occasion, when "sugaring" for the Red Underwing moth (*Catocala nupta* L.), he found the wings of all the specimens taken in one particular spot were crumpled. On investigation he discovered that the ground there had been used by cows when sheltering, and suggested that the consequent trampling of the pupae accounted for the deformities. Possibly some similar reason accounted for Mr. Garrett-Jones's experience.

Professor Varley continued that although he had examined a further thousand individuals of the winter moth in Wytham Wood he had failed to find any additional abnormal specimens, whereupon the President observed that Professor Varley's two gynandromorphs could only be attributed to "beginner's luck"!

Mr. A. Welti exhibited a series of original drawings of British Butterflies made and presented to him by the late F. W. Frohawk, a former Special Life Fellow of the Society. The drawings were made between the years 1881 and 1919, and showed the insects at rest or in hibernation. He drew the attention of Fellows particularly to the illustration of *Maculinea arion* made in 1901, at the time when Mr. Frohawk was in North Cornwall studying the life-history of that butterfly.

In commenting on these drawings Mr. Riley said he was particularly glad to see them, as he had always understood that the late Lord Rothschild had had F. W. Frohawk's original drawings of butterflies. This exhibit showed that it was the original paintings used to illustrate the *Natural History of British Butterflies* which had passed to Lord Rothschild, and so to the British Museum (Natural History), whereas the original pencil drawings used in the same work were in the possession of Mr. Welti. The claims did not in fact conflict.

Mr. E. B. Britton exhibited a specimen of *Heterojapyx novaezelandiae* Silv. (Thysanura: JAPYGIDAE), a rare, giant Thysanuran taken beneath a rotting log, on the edge of the *Notofagus* forest near Nelson, South Island, New Zealand, on 1st September, 1949. He said these insects moved like centipedes, but were quite blind. The first seven abdominal ventrites bear each a pair of two segmented appendages, which appear to be serially homologous with thoracic legs, and the appendages of the terminal segment were modified to form strong forceps, which were said to be used for the capture of prey. The great antiquity of the genus was shown by the fact that two species occur in Australia. New Zealand was separated from Australia in the Cretaceous, and the higher orders of insects have diverged considerably. Close affinity between the two faunas was seen only in the forms of ancient origin.

He also exhibited a specimen of *Ceratrimeria spinosa* (Lubbock) (Collembola: PODURIDAE), a giant Collembolan also taken beneath logs in the *Notofagus* forest at Cawthron Park, near Nelson, New Zealand, on 4th September, 1949. In life this insect was of a pale blue colour, with a dull bloom. The surface could not be wetted with water; it was very sluggish, and grew to a length of $\frac{1}{2}$ in.

Dr. Hinton, in commenting on the specimen of *Heterojapyx novaezelandiae*, mentioned that, as it had eleven pairs of spiracles and full antennal musculature, whereas insects had only ten pairs, it could not, strictly speaking, be classified as an insect.

Professor Varley considered that for an insect like *Heterojapyx* living in soil or in a tunnel, having a pair of "jaws" at each end was obviously a defensive advantage. Mr. Britton stated, however, that *Heterojapyx* was said to catch prey with its forceps by exposing them above the surface of the soil.

Mr. T. G. Howarth exhibited a series of six specimens of *Margaronia unionalis* Hübner, a rare British migrant, bred from a female captured at Freshwater,

I.O.W., in September, 1949. He also showed a preserved larva from this brood, the first to be bred in Britain.

Dr. J. R. Busvine exhibited a collection of insects from Malaya. The specimens included some large and rather striking cicadas and beetles (e.g. *Protocerus colossus*, a palm weevil, and *Mormolyce phylloides*, the Fiddle Beetle), four Danaid butterflies, a Diopsid fly, a termite queen and migrant forms and various Hymenoptera—e.g. cockroach hunters *Ampulex* and *Evania*, solitary and social wasps (*Polistes*, *Stenogaster*, *Odynerus*), scoliids and Mason bees (*Xylocopa* spp.). He said that most of the insects had been collected by himself, but some of the beetles and cicadas, which had been collected in the forest by Sakai, were given to him by Col. J. R. Audy.

Dr. van Emden inquired in what circumstances the *Mormolyce* were collected. Although it was frequent years ago in collections, it was not so nowadays. The reports on its biology were conflicting. Dr. Hinton said he had recently come across an account of its biology in which it was mentioned that the female stayed with the newly hatched young. It was a pity that no further details were available, as on the basis of this scanty information it was not possible to say to what extent this indicated subsocial characteristics. Mr. Britton said there was a box containing some hundreds of unmounted specimens in the Museum, all taken beneath one log. Although it was very local when it did occur it did so in large numbers and was, he suspected, associated with fungi.

Mr. G. J. Kerrich exhibited a specimen of *Thysanusater* Walker, an apparently scarce British Encyrtid (Hym. Chalcidoidea), which had been described by Francis Walker in 1839 and figured in both sexes. The description was made from Haliday specimens which were presumably Irish. The genus was included in the subfamily APHELININAE by Howard in 1895, and by Mercet in 1912, but was transferred to SIGNIPHORINAE by Mercet in 1917. He said these insects were curiously constructed: the scutellum was in the form of a transverse band, the metanotum in the form of an almost equilateral triangle pointing backwards, with small extensions to the hind wings, the propodeum behind it V-shaped and extremely narrow in the middle, and the rest of the abdomen was joined to it by the full girth of the insect—that is, there was no wasp-waist at all. He had been concerned to see this insect, so as to try to decide whether certain neotropical forms really belonged to the same genus, as had been supposed. The species was not represented in the British Museum, and types were not readily to be found in the Haliday Collection. He had been able to borrow a British specimen taken by a Danish entomologist from the Madrid Museum. A species believed to be the same had been taken in Central Spain in numbers on several species of pine; it had also been bred in Italy from the following Coccids: *Aspidiotus ostreaeformis* Curtis on *Prunus* and on *Corylus avellana* and *Aspidiotus* or *Asterolecanium* species on *Quercus robur*. The exhibit was shown in the hope that some Fellow would turn the species up again in this country.

Miss Longfield said that as most of Haliday's material was taken round Belfast, one might expect *Thysanus* to have been imported with timber landed there.

The Secretary exhibited, on behalf of Mr. G. H. Satchell, of the Otago University, Dunedin, specimens of *Exsul singularis* Hutton collected by Mr. George Howes. Mr. Satchell wrote that the tendency for mountain-living Diptera in New Zealand to have the wings enlarged compared with related low-land species had been previously observed. This was well seen in the two species of the Tachinid genus *Campbellia* Miller, but reached its most extreme development however in the Anthomyid genus *Exsul* Hutton. This genus included two species, one of which was *E. singularis* Hutton. So far all specimens collected had been

taken from the Milford Sound area, a region of densely wooded mountainous country in the south-west of the South Island.

Professor H. G. Champion exhibited a series of photographs of termitaria in West Africa, drawing attention to the conspicuous occurrence of several types not seen in the Eastern tropics. He suggested that the capped form illustrated by two of the types occurring in savanna areas might be related to shedding of rain-fall. He drew attention to the striking development of a series of covered galleries on tree-trunks above the main part of the termitaria built against the bark near the base of the tree; these gallery systems consisted of a vertical gallery with a series of straight inbranched parallel laterals on both sides of the same size in section as the vertical, directed downwards at 45° ; he suggested this might possibly be connected with the deflection of water running down the trunks. Another typical form found in tropical rain forest had the appearance of a number of sporophores of a bracket fungus extending eight or ten feet up a tree trunk.

Mr. Oldroyd said he had recently seen similar termite nests in the West African forest. Many of these nests had a surprisingly narrow base and were easily overturned.

The Rev. C. E. Tottenham exhibited a series of the Cetoniid beetle *Eudicella graëlli* Bug to show variation in (a) colour, (b) size, and (c) the horns. The horns showed variation in size, in the degree of function, in curvature, and in the apical teeth. In some of the specimens the horns were asymmetrical with regard to size, shape and the teeth.

The Hon. Secretary, on behalf of Mr. C. J. Brooks, exhibited a normal female of *Faunis faunula faunula* Westwood from Perak and an aberrant female from Taipeny Pass. He said the insect was comparatively rare, and the 17 female specimens in the Museum series showed little variation in the thickness and direction of the narrow, parallel, black lines on the underside, hence this first aberration, in which the lines had, as it were, become tied in a knot at the base of each wing, was of exceptional interest. The specimens exhibited formed part of the collection of the late Dr. Richmond Wheeler, and had been presented to the British Museum (Natural History) by Mr. R. L. E. Ford.

N. D. RILEY, *Honorary Secretary.*

The next meeting will be held on 1st February, 1950, at 5.30 p.m.

NOTICES

In addition to the *Transactions and Proceedings* (Series A, B and C), the following publications are available on application at the Society's rooms :—

THE GENERIC NAMES OF BRITISH INSECTS, WITH CHECK LISTS OF THE SPECIES, prepared by the Committee on Generic Nomenclature of the Royal Entomological Society of London, with the assistance of the Department of Entomology of the British Museum (Natural History) :—

Part 1. Recommendations relating to the publication of the Committee's Reports								Price	6d.
"	2.	Rhopalocera	..	..	..	..	..	"	3s. 6d.
"	3.	Odonata	..	..	..	..	..	"	3s. 6d.
"	4.	Neuroptera	..	..	..	..	..	"	3s. 6d.
"	5.	Hymenoptera	..	..	..	..	..	"	15s. 0d.
"	6.	Coleoptera Carabidae	..	..	..	..	..	"	10s. 0d.
"	7.	Coleoptera Hydradephaga	..	..	..	..	..	"	5s. 0d.
"	8.	Hemiptera Heteroptera	..	..	..	..	..	"	39s. 0d.
"	9.	Coleoptera Staphylinidae	..	..	..	..	..	"	40s. 6d.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS.

The Society has undertaken the issue of a series of publications intended to provide illustrated Keys to the whole of the British Insect Fauna so far as this is possible.

It is proposed to cover this field in a series of ten volumes, arranged as follows :—

I. Part 1. General Introduction.	Part 9. Ephemeroptera.†
" 2. Thysanura.	" 10. Odonata.
" 3. Protura.	" 11. Thysanoptera.*
" 4. Collembola.*	" 12. Neuroptera.
" 5. Dermaptera and Orthoptera.	" 13. Mecoptera.
" 6. Plecoptera.†	" 14. Trichoptera.
" 7. Psocoptera.*	" 15. Strepsiptera.
" 8. Anoplura.	" 16. Siphonaptera.
II. Hemiptera.*	
III. Lepidoptera.	
IV and V. Coleoptera.*	
VI. Hymenoptera : Symphyta* and Aculeata.*	
VII. Hymenoptera : Ichneumonidea.*	
VIII. Hymenoptera : Cynipoidea, Chalcidoidea and Serphoidea.	
IX. Diptera : Nematocera† and Brachycera.	
X. Diptera : Cyclorrhapha.*	

The following parts are now available :—

Vol. I, Part 5. Dermaptera and Orthoptera.	By W. D. Hincks.	Price 3s. 6d. plus postage.
Vol. I, Part 10. Odonata.	By F. C. Fraser.	Price 7s. 6d. plus postage.
Vol. IX, Part 1. Diptera : Introduction and Key to Families.	By H. Oldroyd.	Price 7s. 6d. plus postage.

Parts marked † are in the press, those marked * in preparation.

Orders for the complete series or for separate parts can be placed with the Registrar at the Society's rooms now, but prices can only be quoted for those parts already issued.

Fellows of the Society may purchase one copy at a discount of 25 per cent. ; additional copies at the full published price.

STYLOPS, a Journal of Taxonomic Entomology.

1932-1935. Vols. 1-4 (all issued). Price £1 16s. 0d. each ; to Fellows £1 7s. 0d.

ABSTRACT OF PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. 1935. Nos. 1-6 (all issued). 3s. 0d.

HUBNER : A BIBLIOGRAPHICAL AND SYSTEMATIC ACCOUNT OF THE ENTOMOLOGICAL WORKS OF JACOB HUBNER AND THE SUPPLEMENTS THERETO. In 2 vols. By Francis Hemming. Price Vol. 1. 605 pp. £1 15s. 0d. ; Vol. 2. 275 pp. 15s. 0d.

THE HISTORY OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1833-1933. By S. A. Neave, assisted by F. J. Griffin. Price 10s. 6d.

Published by THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON and sold at its rooms, 41, Queen's Gate, S.W. 7, price 6d.